

REMARKS/ARGUMENTS

Claims 1-9 and 16-24 are pending in the application. Entry of the above amendments and consideration of the following remarks are respectfully requested.

35 U.S.C. § 103 Rejections

Claims 1-8 and 16-23 are rejected under 35 U.S.C. 203(a) as being unpatentable over Nemetz et al (U.S. Patent No. 6,149,430) in view of Jefferies (U.S. Patent No. 6,093,084) and Suh et al (U.S. Patent No. 6,386,865). The Examiner addresses a number of claim limitations in applying these references to the pending claims, however the Examiner appears to have overlooked the fact that claims 1 and 16 each recite that the secondary and tertiary anatomy, the smooth transition between the resin-based material and the tooth, and the smooth enamel-like finish are all created in a single step using a low speed, high torque fluted bur. In this regard, the same fluted bur can be used throughout the single step process to create the secondary and tertiary anatomy, the smooth transition, and the enamel-like finish. As discussed in paragraphs 0023 and 0024 of Applicant's specification (among other places), the claimed method provides an advantage over prior art methods because the entire process can be completed without having to change instruments for the contouring, smoothing, and polishing steps of the restoration.

The "single step" limitation discussed above was clearly recited in the claims as originally presented in this application. Applicant has nonetheless amended claims 1 and 16 to clarify that the secondary and tertiary anatomy, the smooth transition between the resin-based material and the tooth, and the smooth enamel-like finish are all created in a single step, e.g. without the need to change instruments, using a low speed, high torque fluted bur.

In order to properly establish a *prima facie* case of obviousness, the combined prior art references must teach or suggest all the claim limitations. None of the references cited by the Examiner, taken alone or in combination, teach or suggest the claimed method of using a low speed, high torque fluted bur to create in a single step the secondary and tertiary anatomy of a dental restoration, a smooth transition between the resin-based material and tooth, and a smooth enamel-like finish. Rather, each reference explicitly or inferentially teaches the use of different types of dental instruments operated at varying speeds for the formation of secondary and tertiary anatomy, the smoothing of a transition between resin-based material and a tooth, and the creation of a smooth enamel-like finish. Each reference is addressed individually below.

Nemetz et al.

Nemetz et al. teaches a method for manufacturing a hand-held dental appliance. The Examiner relies upon Nemetz because Nemetz briefly mentions “low-speed operation” at less-than-or-equal-to 50,000 RPM for “**fine finishing**.” In the same sentence, Nemetz also mentions using “so-called high-speed operation” of less-than-or-equal-to 500,000 RPM for “**drilling and shaping**.” (Col. 6, lines 8-15). Nemetz also discloses that the turbine 18 “is equipped with one of many interchangeable rotary tools such as fine finishing or polishing heads, or so-called burs, or drill bits, such as bur 22.” With these statements, Nemetz is merely pointing out that which is conventional and well understood by one of skill in the art, that fine finishing and polishing heads are operated at “low-speed,” whereas burs and drill bits are operated at “high speed.” Nemetz and the knowledge of one having ordinary skill in the art clearly teach that in order to successfully perform shaping and polishing operations on a dental restoration, an operator using

conventional methods must change dental instruments (e.g. from a bur or drill to a polishing or fine finishing head) and adjust the speed of drill operation accordingly. Nemetz therefore does not teach or suggest the single step process of claims 1 and 16.

Jefferies

Jefferies teaches a method for dispensing polymerizable compositions into or onto tooth structure. The Examiner relies upon Jefferies because Jefferies teaches performing finish work on a resin based material. Like Nemetz, however, Jefferies teaches the use of multiple dental instruments for the performance of shaping and polishing operations. Jefferies teaches first using an elastomeric shaping and preliminary finishing device followed by the use of a polishing element. Jefferies also reveals that “[i]n the case of extreme overcontouring of composite material, however, it may be desirable to first prepare the composite by gross reduction using a fluted bur.” (See col. 4, lines 27-45. See also: col. 6, lines 43-60; col. 10, lines 56-61; col. 13, lines 3-7; col. 14, lines 7-35; and col. 14, lines 58-63). Jefferies therefore does not teach or suggest the single step process of claims 1 and 16.

Suh et al.

Suh et al. teaches a process for the fabrication of indirect dental restoratives that involves the preparation of a series of impressions and molds of a tooth to be restored. The Examiner relies upon Suh because Suh teaches using a fluted bur to adjust the occlusal anatomy of a restoration. Like Nemetz and Jefferies however, Suh teaches the use of multiple dental instruments for the performance of shaping and polishing operations. This fact is apparent from

the very portion of the Suh specification relied upon by the Examiner. According to Suh, occlusion is adjusted using ultrafine diamond and 30-flute finishing burs, while a final polish is achieved using diamond paste. (See col. 18, lines 57-59). Elsewhere, Suh teaches that “marginal finishing, refining of the occlusal anatomy, and polishing to achieve a high luster may be accomplished by methods known to a person of ordinary skill in the art.” (Col. 15, lines 45-48). As discussed above and in Applicant’s specification, such known methods include the use of different dental implements operated at different speeds for each of the finishing, refining and polishing steps. Suh therefore does not teach or suggest the single step process of claims 1 and 16.

Other Arguments Presented by the Examiner

On page 3 of the Office action, the Examiner asserts that “To create secondary and tertiary anatomy when shaping the tooth is well known in the art, and as such, would have been obvious to the skilled artisan.” While the Examiner’s statement is facially correct, it again overlooks the fact that claims 1 and 16 recite that the creation of secondary and tertiary anatomy is performed in a single step along with the creation of a smooth transition between the resin-based material and tooth, and the creation of a smooth enamel-like finish.

Also on page 3, the Examiner asserts that “Creating a smooth enamel-like finish is held to be a broad limitation because the term smooth is relative and open to interpretation.” Applicant respectfully submits that the phrase “enamel-like” has a specific, well-understood meaning to those having ordinary skill in the art of resin based dental restorations, and is not so open to interpretation as to render this step of the claim obvious as alleged by the Examiner.

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Finally, also on page 3, the Examiner asserts, with regard to claims 16-21, that using more than one bur to provide for an increased level of fine finishing is well known in the art, and as such, using two burs is an obvious matter of choice to one of ordinary skill in the art.

Applicant agrees that using more than one bur to provide for an increased level of fine finishing is well known in the art. Claim 16 however recites using a single low speed, high torque fluted bur to create the secondary and tertiary anatomy of the dental restoration, to create a smooth transition between the resin-based material and tooth, and to create a smooth enamel-like finish, all in a single step.

For the reasons presented above, Applicant submits that the Examiner's rejection under 35 U.S.C. § 103(a) is improper, and that claims 1 and 16 are therefore allowable. Claims 2-9 and claims 17-24 depend from claims 1 and 16, respectively, and are therefore also allowable.

Double Patenting

Claims 1-9 and 16-24 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,783,366. To address this rejection, Applicant has filed a Terminal Disclaimer to Obviate Double Patenting Rejection Over a Prior Patent herewith.

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CONCLUSION

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,



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